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WORLD NEUROLOGY

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Pain Treatment as a Human Right

BY ANDREA PACE, MD

Earlier this year, the International Federation of Health and Human Rights Organization (IFHHRO) and the International Palliative Care Initiative of the Open Society Foundations Public Health Program, organized a workshop in De Bilt, the Netherlands, on pain treatment as a human right. The participants included pain and palliative care specialists and human rights advocates, and their brief was to review a draft resolution on pain as a human rights issue and to analyze the obstacles to gaining access to pain treatment.

The Single Convention of Narcotic Drugs, adopted by United Nations member states in 1961, obligated countries to facilitate access to drugs that could alleviate pain and suffering. Yet it is widely acknowledged that in both developing and industrial countries, pain remains inadequately treated despite the availability of inexpensive and effective pain treatment medications that could dramatically improve the quality of life for patients and their caregivers.

The World Health Organization (WHO) estimates that 5 billion people – about 75% of the global population – live in countries where there is insufficient availability of pain medication. Children and people with intellectual disabilities or consciousness impair-

COURTESY DR. ADREA PACE

Regulations limiting access to opioid pain medications can hinder effective pain treatment, says Dr. Andrea Pace.

ments are especially at risk for not receiving adequate pain treatment because they often are not able to communicate the extent of their pain or their need for pain relief.

I attended the workshop as a World Federation of Neurology representative. My fellow participants and I noted several barriers to the provision of pain treatment and palliative care, including:

- Failure by governments to enact policies on pain treatment and palliative care;
- Failure by governments to provide a functioning drug supply system;
- Poor training of health care workers;
- Lack of information for patients;
- Fear among health care workers of legal sanction; and
- Unnecessarily expensive pain treatment.

We highlighted the lack of education among health professionals for assessing and treating pain and unnecessarily restrictive government regulations that limit access to opioid pain medications, such as morphine, as the major limitations for adequate pain treatment and management.

For example, although the WHO has included morphine (and codeine) on its list of essential medicines, opioids used for pain treatment are still not widely available. "If they are available, there are often strict rules on who can prescribe them, who should administer them, in what dose and with what intervals. As a result, many people around the world in need of pain relief unnecessarily suffer from untreated pain," the IFHHRO said in a statement after the workshop.

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Long-term Antiepileptics, Osteoporosis Strongly Associated

BY DENISE NAPOLI
Elsevier Global Medical News

A significant positive correlation exists between bone fractures and cumulative antiepileptic drug load among epilepsy patients with osteoporosis, independent of the specific drugs used.

And although more research is necessary, "this finding underlines the importance of good bone health practices in patients with chronic AED use," Dr. K. Beerhorst and his colleagues reported in *Acta Neurologica Scandinavica* (2011 Mar. 21[doi: 10.1111/j.1600-0404.2011.01509.x]).

Dr. Beerhorst, of the department of neurology at Maastricht University Medical Center, the Netherlands, and his colleagues took as their study cohort all residents of a tertiary level "long-stay care facility" for patients with refractory epilepsy in that country.

In 2008, they performed a database search of the center's affiliated hospital pharmacy to identify all adult patients who were diagnosed with osteoporosis and treated with a bisphosphonate at that time.

In most residents, this diagnosis was made based on the findings of a bone mineral density study with quantitative computed tomography (QCT; $n = 32$); patients were diagnosed with osteoporosis of the spine based on QCT T scores of less than 3.1 and/or a Z score of less than 1.5.

Ten patients had a dual-energy x-ray absorptiometry (DXA) scan of the lumbar spine and hip to diagnose osteoporosis. In these patients, "the DXA T score threshold defined by the [World Health Organization] was used."

And in 12 patients, the diagnosis of osteoporosis (and corresponding need for bisphosphonate treatment) was made on clinical grounds (one or multiple low-energy fractures), plus

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EDITOR IN CHIEF'S COLUMN

Doing Our Best

We went into medicine to help people and we want (or should want) to do the very best for each person we see. The field of medicine is complex, however. Not only are there many diseases and many possible therapeutic choices for them, but change, in the form of advances or revisions of old ways, is ever present. Moreover, many issues are not clear, giving rise to uncertainty in decision making. Medicine is an art as well as a science. Not only do we need a good education at the outset, but we need to keep learning as long as we practice. Some of us are self-motivated in this regard, but it certainly helps to have regulation to push us, since it is easy to fall into old habits, and there are plenty of ways to spend our time. Studying can be a bit boring, but there is not going to be much choice in this regard.

BY MARK HALLETT, MD

In the United States, the first type of regulatory learning we were presented with was the requirement for continuing medical education. This is certainly necessary, but difficult to police. Do people really spend the time they say they do on the courses? Do they really learn anything from the experience? Add-ons to this activity have been post tests, comparisons of pre tests with post tests, questionnaires inquiring what you might change in your practice, and questionnaires after a lapse of time asking what you did change.

Then there is the recertification examination, which leads to maintenance of certification, or MOC. Periodically, say every 10 years, your knowledge and skills are retested. As they say, the value is not in the exam itself, but in the need to study for it! This is becoming more popular, and relicensure may soon require this step.

The most recent trend is evaluation of performance in practice, PIP. With this, your actual practice and your medical records are reviewed and compared with standard guidelines. If your practice does not fit the guidelines, then you are advised on what changes you need to make, and there is a follow-up after a given period to gauge if there has been improvement. This is now starting to be implemented in the United States, and will be required for the renewal of board certification in neurology. But how are the best guidelines determined? Evidence-based medicine has been the trend, but there have been vitriolic attacks against this approach. Certainly, double-blind, placebo-controlled trials are needed, but it is not always clear how to apply this information into everyday practice. Now comes quality measures, as described on page 10 by Dr. Christopher Bever and his colleagues on the American Academy of Neurology's Quality Measures and Reporting Subcommittee. These are expert, opinion-based guidelines for practice. They can help with developing PIP programs and may even produce more income for neurologists who follow them through pay-for-performance programs. One hopes that there still will be room for physician judgment, which is certainly necessary since each patient is different.

Times are changing with more regulation, but it is likely that if you want to do your best for each patient, these programs should be helpful. ■

WCN 2011 – AN INVITATION

Marrakesh, Where Art, Culture, and Cuisine Mingle

Sir Winston Churchill was particularly taken by Marrakesh ... "Here, surrounded by its extensive palm-groves that have sprung out of the desert, the traveler may rest assured that he will never tire of the majestic view of the snow-covered Atlas Mountains," he wrote. There's no doubt that it is an alluring city, and a perfect venue for 20th World Congress of Neurology, Nov. 12 to 17.

The speakers at this year's congress have been selected for their expertise and ability to convey the latest information about advances in their subspecialities to their fellow neurologists (see p. 3). This year's Scientific Program builds on the successful 2009 Bangkok Congress and includes additional regional and continental dimensions, since this is the first WNC held in Africa.

There has been some concern about the recent unrest in Africa. Morocco is a stable monarchy that continues to be a popular tourist destination. No travel advisories have been issued and plans are going ahead as scheduled. Members of the Congress Supervisory Committee will be visiting Marrakesh this summer, so we will have up-to-date, "on-the-ground" information about the city.

Come to Marrakesh and be part of a milestone scientific and cultural event!

Vladimir Hachinski, MD
President, WFN

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Some call Marrakesh "the oriental gateway to the Atlas Mountains," seen here as a striking backdrop to a cluster of palm trees.

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PRESIDENT'S COLUMN

Putting Brain Health on the Global Disease Grid

The global disease burden generated by noncommunicable diseases (NCDs) is substantial, particularly in low- and middle-income countries, and the associated deaths are on the rise, according to a recent report by the United Nations. In an effort to raise awareness of these diseases, the organization plans to hold a summit meeting on NCDs in New York, Sept. 19-20, 2011, to address the effects of these diseases and draw up a plan of action to reduce their prevalence.

BY VLADIMIR HACHINSKI, MD

The four groups of diseases that the UN has deemed account for most NCD deaths are: cerebrovascular disease, diabetes, cancer, and pulmonary disease. These diseases share risk factors, and their incidence could be substantially reduced if there were a concerted effort to control tobacco use; lower salt intake, and consumption of sweetened drinks, saturated, and trans fats; and to encourage increased physical activity.

It is worth noting, however, that the brain and brain disease are not on this agenda, except by implication: "cerebrovascular disease" includes stroke.

In an attempt to have the brain – and by extension, neurology care – included on the UN agenda, the World Federation of Neurology invited representatives from the European Brain Council, the International Brain Research Organization, the International Child Neurology Association, the World Federation from NeuroRehabilitation, World Federation of Neurosurgical Societies, the World Psychiatric Association (WPA) to meet with a representative from the World Health Organization in Geneva in March. The World Heart Federation, at our invitation, sent an observer. (Since the March meeting, the World Stroke Organization, Alzheimer's Disease International, and the International League Against Epilepsy have joined the Alliance.)

At that meeting, we formed a working group of the World Brain Alliance, of which I am chair, and we drafted a document titled "The Brain: A Key in the Fight Against Noncommunicable Diseases" to argue our case for inclusion.

In April, I attended the first Global Ministerial Conference on Healthy Lifestyles and Noncommunicable Disease in Moscow, along with Bo Norrving, president of the World Stroke Organization and Marc Fisher, editor of the journal *Stroke* and the official delegate of the American Heart Association. This time, our mission was to try to get "cardiovascular disease" spelled out as "heart disease and stroke." The brain is still not part of the global health agenda, but the draft document of the World Brain Alliance was circulated to all the participants at the Moscow meeting. I shall follow up with you on the outcome.

No one can tell how far our efforts will take us, but the fact that all brain organizations we invited are willing to join us in the World Brain Alliance, gives us hope that we can do much to ensure healthier brains for a healthier world. ■

WORLD CONGRESS OF NEUROLOGY 2011

Hands-On Teaching Courses, Rich Scientific Program

Participants at this year's World Congress of Neurology from Nov. 12 to 17 in Marrakesh, Morocco, will have access to a multitude of hands-on teaching courses, all of them taught by leading world experts in each field.

"The [Marrakesh] congress presents an exceptional opportunity for participants to meet their colleagues from around the world and to learn about topics of international importance and concern," said Dr. Wolfgang Grisold, chairman of the World Federation of Neurology (WFN) Teaching Course Committee.

"The teaching courses, especially, will provide forums for learning and exchange among all participants – those who are starting out in their careers as well as more senior, practicing neurologists," he continued.

Clinical and General Content

The courses will run throughout each day of the congress in parallel to the rich and varied scientific program. Participation in a course will translate into separate CME credits, in addition to the CME credits given for participation in regular congress sessions.

With a selection of 49 teaching courses and six workshops offered at this year's congress, the course content cover a range of clinical and more general topics.

The clinical subject matter will include epilepsy, stroke, infection, sleep, pain, child neurology, movement disorders, and dementia, among others. These sessions will feature practical demonstrations, using equipment specific to the condition or disease under discussion, as well as live demonstrations on patients.

Advocacy, Education, How-To Advice

There will also be sessions addressing educational topics, for example, the Palatucci Advocacy Leadership Forum meeting with the American Academy of Neurology and neurological education sessions.

In addition, the International Working Group of Young Neurologists and Trainees workshop for young neurologists. Practical aspects such as how to deal with good and bad news, and how to write a paper will be other important topics.

Teaching courses will also focus on challenges facing neurologists in low-income countries, such as one titled Dementia in the Developing World.

For the first time, the WFN will offer a free teaching course every day, dedicated to residents and young neurologists and covering topics such as disturbed consciousness, tremor, diplopia, and myopathy. Experts will give insight into these important and vital aspects of clinical neurology, and this will be a future key element of teaching courses.

The World Stroke Organization will offer ABC Cardinal Principles of Stroke Management, following the trend to offer broad access to neurological development in teaching courses.

The choice of subject matter reflects the emergence of new therapies and diagnostic technology, such as Botox, deep-brain stimulation, EEG video, interventional radiology, and neuroimaging, as well as the more refined distinctions between the subspecialties, such as sports medicine, brain injury, neurorehabilitation, and neurocritical care.

The congress secretariat will publish a full syllabus for each course ahead of the congress starting date.

Scientific Program

The scientific program will feature an impressive line-up of international experts, from Africa and around the world. The bulk of the program will be made up of **main topic sessions**, each with a number of lectures under a common theme.

Many of the sessions and lectures will focus on the congress theme, "With Africa, for Africa," and will highlight the achievements of African neurologists and the challenges they face in delivering neurological care. These include "History of Neuroscience in the Maghreb" on Monday, Nov. 14, and "Neurological Care Policy in Africa" on Wednesday, Nov. 16.

Daily **plenary sessions** will include the following topics:

- The Mirror Neurons and the Cognitive Brain (Giacomo Rizzolatti, Italy);
- The Future of DBS in Neurology and Psychiatry (Alim L. Benabid, France);
- Challenges in Adopting International Guidelines Into National Stroke Programs (Lu Chuanzhenn, China);
- Neuroaesthetics: Artistic Creativity and the Brain (Sémir Zeki, UK); and
- Vertigo and Balance (David Zee, USA).

Also included under the plenary sessions are the Named Orations:

- The Melvin D. Yahr Lecture (presented by Anthony Lang, Canada);
- The Neurology of HIV – the Eddie and Piloo Bharucha Lecture (Elly Katabira, Uganda);
- Soriano Lecture (Christian Elger, Germany); and
- Motor Neuron – the Fulton Symposium Soriano Lecture (Hidehiro Mizusawa, Japan).

Choices for the Presidential Session

The topics for the presidential session will be:

- Neuropsychology of the Arabic Language, which will be presented by El Mostafa El Alaoui Faris, Morocco, who is the president of the WCN 2011;
- Hypertension and the Brain (Vladimir Hachinski, president of the WFN); and
- The Changing Spectrum of Neurology: New Agenda, Opportunities, and Allies (Werner Hacke, Germany).

In addition to the aforementioned sessions, attendees will also be able to participate in regional and educational sessions and daily debates.

For More Information…

- **Abstract submission.** The closing date for the submission of abstracts is June 15, 2011. Submit your abstract at www2. kenes.com/wcn/scientific/Pages/Call.aspx.
- **Scientific program.** See ww2.kenes.com/wcn/scientific/Pages/Interactive_Scientific_Program.aspx.
- **WCN 2011 homepage.** See www.wcn-neurology.com. ■

FROM THE WFN RESEARCH GROUP ON THE HISTORY OF THE NEUROSCIENCES

How Charcot's Influence Defined Russian Neurology

By the middle of the 19th century, there were no formally trained neurologists in Russia, even though courses on nervous and mental disorders had been offered at Moscow University since 1768. This situation made training abroad an absolute necessity, and Germany, England, and France were the destinations of choice given their prominence in medical science at the time.

Russians were no strangers to France, and Paris, in particular, given that many considered traveling to France a form of cultural and intellectual apprenticeship. Likewise, for young Russian doctors interested in nervous and mental diseases, going to Paris was a natural choice and automatically meant going to Jean-Martin Charcot (1825-1893), who was in the avant-garde of French clinical neurology and based at the Salpêtrière Hôpital. Charcot was a devoted teacher whose extraordinary skills attracted a huge number of pupils from abroad. But he was also interested in receiving foreign students and chairing their theses as part of his longer-term plan to secure the chair of neurology in the faculty of medicine and promote his accession to the Académie des Sciences et de Médecine.

Aleksei Yakovlevich Kozhevnikov (1836-1902), the pioneer of Russian neurology, was one of the first Russians to visit the Salpêtrière, where he studied under Charcot from 1867 to 1868 after graduating from Moscow University and training in Germany and England. The time he spent with Charcot strengthened his belief that neurology should be seen as an independent discipline.

When Kozhevnikov returned to Russia in 1869, the council of Moscow University chose him to lead the department of nervous and mental diseases, making him the first Russian professor of neuropathology – *la pathologie nerveuse* – his preferred term for the discipline and one that would be used in Russia and the Soviet Union for many decades thereafter. It was not until 1882, 13 years later, that Charcot was appointed chair of the study of diseases of the nervous system in Paris.

Kozhevnikov was a faithful follower of Charcot's anatomoclinical approach. As the head of the department in Moscow, he insisted on his young colleagues and students going to study in Paris, setting up a steady flow (until the Russian Revolution of 1917) of young Russian doctors pursuing their studies at the Salpêtrière. Among those who went to Paris and who would later help chart the course of Russian neurology (and psychiatry), were Sergey Sergeevich Korsakov (1854-1900), Vladimir Karlovich Roth (1848-1916), Lazar Salomowitch Minor (1855-1942), and Liverij Osipovich Darkshevich (1858-1925).

BY ALLA VEIN, MD, PHD

Dr. Vein is a neurologist at the neurology department of Leiden University Medical Centre, the Netherlands, and a member of the WFN Research Group on the History of the Neurosciences.

Students from St. Petersburg also sought training in Paris. Ivan Pavlovich Merzheevskii (1838-1908) was one of the first St. Petersburg psychiatrists to train in Paris. Being interested in neurology and psychiatry, he worked both with Charcot and psychiatrist Valentin Magnan (1835-1916). Merzheevskii's most outstanding pupil was Vladimir Mikhailovich Bekhterev (1857-1927). Bekhterev arrived in Paris in 1883, where he worked with Charcot and the psychologist Pierre Janet (1859-1947). He became very interested in hypnosis and spent many hours with Charcot during hypnotic sessions. This very fact would leave its imprint on the differences between the Moscow and St. Petersburg schools of neurology and psychiatry. In Moscow, Kozhevnikov had sought the separation of neurology and psychiatry, whereas in St. Petersburg, Bekhterev created a multidisciplinary approach, in which he sought to combine neurology, neurophysiology, psychiatry, psychology, and neurosurgery. He succeeded in implementing this approach by founding the Psychoneurological Institute in St. Petersburg in 1907, where he remained as director until his untimely death in 1927.

Charcot and his school did not just offer professional training but also created the best minds, which would define the direction of neurology in Russia for many decades. After returning home, Russian doctors proceeded to make their own original contributions. Remarkably, though trained by the same teachers, each of these future "founders of neurological and psychiatric schools" followed his individual path, which resulted in an undeniable diversity in Russian neurology and psychiatry during the period of their formation. (For more information, see Eur. Neurol. 2011;65:75-81.) ■

Courtesy Dr. Alla Vein

Charcot and his daughter Jeanne (seated center) in Moscow in 1891, with Kozhevnikov (right front). Standing (from left) are Muratov, Rossolimo, Jean Charcot, Pribytkov, Roth, and Minor.

Peter J. Koehler, MD, PhD, *is the editor of this column. Dr. Koehler is a neurologist in the department of neurology at the Atrium Medical Centre, Heerlen, the Netherlands. Visit his website at www.neurohistory.nl.*

Good Bone Health Care Needed

Antiepileptics • *from page 1*

signs of osteoporosis seen on conventional x-rays.

Overall, this search yielded 54 patients, out of a total 261 residents at the center (21%), who were diagnosed with osteoporosis and were being treated with a biphosphonate; 33 patients were male, and the mean age was 58.2 years. The mean duration of disease was 53.7 years.

All but 3 of the 54 patients studied were taking one or more of the so-called "enzyme-inducing" antiepileptic drugs (AEDs), which the authors stated are known to be associated with negative effects on bone mineral metabolism and bone quality.

The most common of these in the present study were carbamazepine (39 patients, or 67%), lamotrigine (21 patients, or 39%), and phenytoin (15 patients, or 28%).

Only three patients did not use enzyme-inducing AEDs; two of these received no AEDs at all, and a third received monotherapy with valproic acid.

To gauge drug therapy, the authors calculated each patient's "cumulative drug load," that is, their total duration of epilepsy diagnosis multiplied by the current number of AEDs.

"This surrogate measure of cumulative antiepileptic drug load was used because no standard measure for chronic treatment with multiple drugs during many years is available," they wrote.

The mean number of previous fractures among the cohort was 4.7, with a range between 0 and 18.

The authors also assessed ambulatory status among the study participants, which ranged from bedridden status in 14 patients, to wheelchair-bound in 8 patients, to being able to walk with an aid in 10 patients, to unassisted ambulation in the remaining 22 patients.

Overall, using the Pearson correlation coefficient, the authors found that the number of fractures correlated significantly with ambulatory status ($r = –0.269$; $P = .05$), cumulative drug load ($r = 0.286$; $P = .04$), and current number of AEDs ($r = 0.283$; $P = .04$).

They found a negative correlation between the cumulative drug load and the T score by QCT ($r = –0.456$; $P = .04$), with a determination coefficient of 0.137.

"Correlations could not be provided for individual drugs in our population, as only a minority was on monotherapy and even less patients had always been on monotherapy of the same antiepileptic drug," wrote the authors.

The authors also undertook a linear regression analysis, looking at duration of epilepsy, cumulative drug load, age, body mass index, ambulatory status, alcohol consumption, caffeine intake, and smoking as possible predictors of fractures.

They found that among these, only drug load was independently significant ($P = .029$).

"This does not provide concluding evidence for a causal relationship, but is at least 'a smoking gun' illustrating a strong association between 'chronic,' that is, long-term treatment with multiple AEDs, and osteoporosis," wrote the authors.

The authors conceded several limitations of this study. For one, they pointed out that many of the residents of the long-term care facility they studied had mild to moderate intellectual disability.

Indeed, "People with an intellectual disability are reported to have high rates of osteoporosis and osteopenia, possibly as an effect of reduced mobility," they wrote. "However, when entering mobility into the linear regression analysis, the association between drug load and fractures was preserved, suggesting again the independent effect of cumulative drug load."

The authors also stated that the current gold standard for bone mineral density measurement is the DXA scan, and ideally, all patients would have been measured against that technique.

"However, we were dependent on the county hospital where our residents were sent to for their bone mineral studies," they wrote. "In this hospital, DXA scan has become more available in the last 10 years, whereas most of our patients were examined earlier."

Disclosures: The authors declared no conflicts of interest relating to this study, and no funding source. ■

Review Suggests Caution in Using Statins for Treating Alzheimer's

BY DENISE NAPOLI
Elsevier Global Medical News

The benefits – and possible contraindications – to the use of statins in Alzheimer's disease remain poorly understood, and their widespread use in that population is premature, according to a review.

"Although the evidence provided with preclinical data substantiated the potential beneficial effects of statins in dementia and AD, the results provided by epidemiological studies and [randomized controlled trials] are quite contradictory," wrote Dr. D. Allen Butterfield and his colleagues (*Pharmacological Research* 2011 April 21 [doi: 10.1016/j.phrs.2011.04.007]).

VITALS

Major Finding: Statin therapy in Alzheimer's disease shows conflicting outcomes, both in preclinical data and randomized controlled trials.

Data Source: A perspective on the current literature on statin therapy in Alzheimer's disease and dementia.

Disclosures: Dr. Butterfield disclosed that the review was partially funded by a grant to Dr. Butterfield from the U.S. National Institutes of Health. The authors made no other disclosures in relation to this study.

"However, strong consideration for researchers and clinicians in the near future to investigate whether or not statin therapy should be restricted to selected populations of demented individuals with the best chance of efficacy derived from evidence-based medicine is recommended," he added.

According to Dr. Butterfield, of the University of Kentucky, in Lexington, USA, despite their well-known beneficial effects on hyperlipidemia, statins' pleiotropic effects on other pathways can be both therapeutic as well as detrimental.

For example, the inhibition of HMG-CoA reductase – statins' main mechanism of action – also reduces the production of coenzyme Q10, an antioxidant necessary for energy metabolism in the heart, skeletal muscle and liver, and dolichol, which may function as a "radical scavenger," said Dr. Butterfield.

Statins, which were at one time proposed as a possible treatment for multiple sclerosis, also affect myelination. A 2010 study found simvastatin had a detrimental effect on oligodendrocyte outgrowth, "a key step in the remyelination process," wrote the researchers (J. Neurosci. Res. 2010;88:3361-75).

Nevertheless, at the preclinical level, several studies have shown promise. In a 2009 study, researchers reported that atorvastatin reduced amyloid beta-induced oxidative stress – "strongly associated with amnestic mild cognitive impairment] and AD" – in mice models (Neurobiol. Dis. 2009;35:406-14).

Another small study in humans showed a reduction in tau protein phosphorylation, measured in cerebrospinal fluid, after 14 weeks of treatment with simvastatin – but not pravastatin (J. Alzheimers Dis. 2006;10:399-406).

On the other hand, clinical randomized controlled trials have mostly confirmed statins' null or negative effects on cognition, according to the current review.

Dr. Butterfield cited the large PROSPER study, which followed about 6,000 adults aged 70-82 years who were treated with either a daily dose of pravastatin or placebo for a mean of 3 years. The trial showed no significant difference in cognitive decline between groups (J. Neurol. 2010;257:85-90).

A similar conclusion was reached in the LEADe study (Lipitor's Effect in Alzheimer's Dementia), in which 640 adults with mild to moderate AD were randomized to atorvastatin 80 mg/day or placebo for 72 weeks.

That study found no differences between the treatment and placebo groups, either on cognition (as measured by Alzheimer's Disease Assessment Scale-Cognitive Subscale, $P = .26$) or global function (as measured by Alzheimer's Disease Cooperative Study Clinical Global Impression of Change, $P = .73$) compared with placebo (Neurology 2010;74:956-64).

Why such a discrepancy between findings? One reason may be baseline serum cholesterol levels. "Recalling that cholesterol is a main component of cell membranes, in particular myelin, if cholesterol blood levels fall due to uncontrolled therapy with lipid lowering agents, nervous function would also decrease," wrote the authors.

However, while they cautioned against administering statin therapy to Alzheimer's patients with low cholesterol plasma levels, "such as those affected by liver failure," they conceded that at least one study has shown only slight reduction in cerebrospinal fluid cholesterol levels after 6-7 months of simvastatin or atorvastatin therapy, with a return to baseline levels after 3 years (Dement. Geriatr. Cogn. Disord. 2009;27:519-24).

"This finding lends support to the idea that, despite the changes in plasma cholesterol levels, only minimal changes in brain cholesterol occur after statin therapy and, therefore, the effect on cognitive functions are independent of the 'local' cholesterol metabolism," they wrote.

Another possible factor causing the varying degrees of statin efficacy found in the literature is concomitant medication usage, which is highly prevalent in the elderly population targeted in these studies. "All statins, with the exception of pravastatin, are metabolized by CYP3A4 or CYP2C9, and their plasma levels could be reduced or increased in the case of concomitant administration of drugs that induce or inhibit these CYP isoforms," wrote the researchers.

Based on these inconsistent findings, they recommended several future avenues for research into the relationship between statin therapy and Alzheimer's. For one, they advocated for selective trials of patients aged 65-75 years, "the age which seems to receive more benefit from statin therapy," compared with older patients.

"Another recommendation to consider is to study in-depth the effect of statins in individuals with mild cognitive impairment, in order to understand whether or not the antioxidant effect of these drugs could block or slow the transition phase to AD," they added. ■

WFN 2011 TRUSTEE ELECTION

Nominations Due by Oct.14

In accordance with the Memorandum and Articles of Association of the World Federation of Neurology (WFN), the election of one new Trustee will take place at the annual general meeting of the Council of Delegates during the World Congress of Neurology in Marrakesh in November.

The present holder of the post, Dr. Gustavo C. Romano, as is his right, is standing for re-election, and member societies have been given the opportunity to propose candidates to the Nominating Committee. The committee has drawn up the following list for presentation to the Council:

- **Dr. Gustavo C. Roman, USA**
- **Prof. John Wokke, the Netherlands**

It remains open to any five or more authorized WFN Delegates to jointly submit the name of any other candidate to the Secretary-Treasurer General up to 30 days before the date of the Council of Delegates' AGM, that is, Oct. 14, 2011. Any nomination received after this date unfortunately cannot be accepted.

The nominations can be sent to Dr. Raad Shakir, Secretary-Treasurer General, World Federation of Neurology, Hill House, Heron Square, Richmond, Surrey, TW9 1EP, UK. They can also be faxed to Dr. Shakir at 44 (0) 208 439 9499 or e-mailed for his attention to info@wfneurology.org. ■

REGIONAL FOCUS – EAST AFRICA

Study Explores Effects of Parkinson's in Rural Tanzania

BY JEFFREY S. EISENBERG
Elsevier Global Medical News

Parkinson's disease has physical, psychological, social, and economic consequences for patients and caregivers in rural Africa, where misconceptions about the cause, symptoms, and appropriated treatment abound, according to a new study in *BMC Public Health*.

An estimated 10 to 405 per 100,000 people worldwide have Parkinson's disease. In rural northern Tanzania, 32 of about 161,000 people living in the area studied have Parkinson's. However, the researchers wrote, there appears to be no published social science studies of Parkinson's disease in Africa.

So, Gerry Mshana, PhD, of Tanzania's National Institute for Medical Research in Dar es Salaam, and colleagues sought to investigate the experiences of patients with Parkinson's disease and their caregivers.

The study took place within the Hai district in Tanzania, where researchers conducted 62 semi-structured interviews among 28 Parkinson's sufferers, 28 caregivers (1 for each patient), 4 health-care workers, and 2 traditional healers (*BMC Public Health* 2011;11:219). The patients ranged in age from 45 to 94 years, with 26 (93%) past age 64. Most of the caregivers were women and were mainly the wives, daughters, or daughters-in-law of the patients. The researchers also conducted six focus group discussions in three villages among people from various socioeconomic backgrounds.

Patients and caregivers alike reported how Parkinson's disease had changed their lives for the worse, including:

▶ **Physical symptoms and disabilities.** These were the most prominent effect of the illness among patients. Of the 28 patients interviewed, 18 said they could no longer dress themselves, 21 said they could not walk without assistance, 20 said they could not eat properly, and 5 said they could not turn in bed. Also, four male patients said the disease led to erectile dysfunction, and two reported constant fatigue.

▶ **Economic losses.** Twenty-three of the 28 patients interviewed said they were unable to work, leading to reduced income and greater dependency on siblings and other relatives. Most caregivers also reported economic losses, as their caregiving roles prevented them from earning an income.

▶ **Sense of hopelessness and social isolation.** Five patients said they experienced PD-related stigma from family and community members. Also, four patients described themselves as extremely bitter and their lives as hopeless.

There were similar effects on caregivers, who said they felt both humiliated by becoming more dependent on relatives and helpless because they did not know what Parkinson's disease was and how to help their loved ones. They also felt helpless when they took patients to the hospital and had not seen any improvement in their condition.

PATIENTS AND CAREGIVERS SPOKE OF THEIR ECONOMIC LOSSES, PARKINSON'S-RELATED STIGMA, AND REJECTION BY FAMILY AND COMMUNITY.

As with patients, many caregivers said they did not take part in social activities. "Reports of [caregivers] failing to engage in social activities such as funerals and festivals highlight the serious social consequences as a result of their caring responsibilities," the researchers reported. "This further demonstrates that the consequences of PD extend beyond the sufferers, especially in this context where help from health professionals such as community nurses may not be readily available."

Awareness of the disease and its implications was very low among residents of Hai, the study found. Few people said they have heard of the disease, and even those who have heard of Parkinson's disease had misconceptions about the specific causes. For example, some thought it was caused by cold weather, hypertension, stress, poisoning, use of insecticides, having sex while menstruating, or eating certain foods during pregnancy. These misunderstandings were widespread among different groups of people.

"Despite the outlined misconceptions, some respondents had correct notions about PD, such as that it mainly affects the elderly," the researchers add. "After probing, some respondents from all groups mentioned correct symptoms such as tremor, walking difficulties, body pain, and dysphasia."

These misconceptions, the researchers say, can cause patients to further isolate themselves or not seek appropriate treatment. Also, most of the patients were not aware that they had Parkinson's disease; rather, they sought treatment for specific symptoms.

Patients decided on treatments either on their own or in collaboration with family members and, in some instances, with neighbors and family friends. Affordability, including the costs of transportation, consultations, and drugs, was their primary consideration in treatment-seeking decisions.

Only two patients were receiving Western-style treatment through outsourcing drugs from other regions of the country and outside of Tanzania, but most patients received no Western-style treatment.

"This may be a manifestation of either lack of proper diagnosis due to the lack of capacity within the health care system, or inability of sufferers to 'outsource' the drugs," the researchers say. "The reported lost opportunity to generate income may make it difficult for sufferers and their carers to afford treatment even if it were available within the existing health-care system."

The researchers are planning follow-up studies that will include more longitudinal data. Meanwhile, they say, this study shows the need for appropriate planning for PD diagnosis. In poor settings, such as sub-Saharan Africa, interventions must be cost effective, tailored to the local population, and include a reliable, affordable, and sustainable supply of PD drugs. Interventions also must prioritize the needs of specific groups of caregivers, the researchers said.

"Health policy setting at the national and international levels needs to recognize that early and appropriate intervention of the 'nontraditional' illnesses in developing countries, such as PD, may offer a better chance of success," wrote the authors, who had no competing interests to disclose. ■

In Kenya, Decline in Malaria Echoed in Dip in Seizures

BY JEFFREY S. EISENBERG
Elsevier Global Medical News

The incidence of malaria-associated seizures in children in sub-Saharan Africa decreased during a 7-year observation period, coinciding with a decrease in malaria itself, according to a study in *Brain*. This was similar to a decline the researchers predicted at the outset, and they believe it could lead to a reduced incidence of neurological disabilities and epilepsy associated with malaria in this area.

Malaria caused by *Plasmodium falciparum* is the most common cause of acute symptomatic seizures in children admitted with parasitaemia to a rural hospital in a part of Kenya in which malaria is endemic.

The risk for seizures, however, decreases with age. Also, malaria transmission and admissions on the Kenyan coast have been significantly lower during the past decade, possibly due to more control interventions, effective antimalarial drugs and improved education.

Symon M. Karluki, assistant researcher at Kenya Medical Research Institute in Nairobi and his team believed the coincidence of a decrease in admissions with acute symptomatic seizures and a decline in malaria transmission could help them determine an appropriate measure of seizures that are attributable to malaria.

VITALS

Major Finding: From 2002 to 2008, all acute symptomatic seizures decreased by 809/100, 000 a year, with 93.1% of this decrease occurring in malaria-associated seizures.

Data Source: Study of children ages 0-13 who were hospitalized with a history of seizures in a rural Kenyan hospital.

Disclosures: The Wellcome Trust, Kenya Medical Research Institute, and Biomedical Research Centre in Oxford provided funding for the study.

"We also hypothesized that most of the decrease in acute symptomatic seizures would occur in admissions with a positive blood-slide for malaria or malaria-associated seizures (MAS) compared with admissions with a negative blood-slide for malaria or non–malaria-associated seizures (non-MAS)," the researchers said.

Using an online admissions database, the researchers identified all children from birth to age 13 who were admitted to Kilifi District Hospital between 2002 and 2008 with a history of seizures and reviewed their clinical notes for information on malaria status and seizures (*Brain* 2011 April 10 [doi:10.1093/brain/awr051]).

The medical history included the parental description of episodes of seizures, number and duration of seizures. Lab work upon admission included full blood count, malaria parasitaemia, plasma glucose, venous blood gases, and blood culture were done on all children at admission, including the comparison group. Also, the nursing staff recorded the time of onset and cessation of seizures, what antiepileptic drugs were administered, and the level of consciousness at the end of a seizure, as determined by the Blantyre Coma Score.

The researchers used logistic regression to determine the proportion of seizures that were due to malaria and then to determine if the observed decrease in acute symptomatic seizures was a measure of seizures that are attributable to malaria.

A total of 34,057 children ages 0-13 were admitted during the study period. Upon admission, 7,150 children (21%) had *P. falciparum*, and 5,580 (16%) had a history of seizures, the researchers found.

Further analysis showed that 4,370 (61.1%) children admitted with malaria parasitaemia did not have a history of seizures that led to hospitalization. After excluding children who lived outside of

Continued on following page

Advocacy Honor for Michael Finkel

Dr. Michael Finkel, past-president of the World Neurology Foundation (WNFo), an independent nonprofit organization that serves as a charitable arm of the World Federation of Neurology, has been named the 2011 Kenneth M. Viste, Jr., MD, Patient Advocate of the Year for his commitment to patient advocacy.


DR. MICHAEL FINKEL

The award was established in 2007 to recognize member physicians who, like Dr. Finkel, demonstrate outstanding commitment to advocating for the patient community. It is sponsored by the AAN and endowed by gifts from Dr. Viste's friends and colleagues to the Kenneth M. Viste, Jr., MD, Leadership Fund.

During his tenure as president of the WNFo from 2006-2011, Dr. Finkel was the driving force behind a number of advocacy and teaching projects in various regions of the world.

Earlier this year, he spearheaded the Nigeria-Florida Neuroscience Partnership between the Florida Society of Neurology and the Nigerian Society of Neurological Sciences and Nigerian Stroke Society to develop neurology training and services in Nigeria (WORLD NEUROLOGY, February 2011, p. 1). At the World Neurology Congress in Bangkok, he offered the first session of its kind on advocacy training for attendees (October 2009, p.2).

Dr. Finkel has also been closely involved with the Tool Kits for Africa project, which provides the basic tools for the neurological exam (April 2009, p. 14), and in 2008, he assisted the organizers of the joint 12th Asian Oceanian Congress of Neurology and 16th Annual Conference of the Indian Academy of Neurology in New Delhi in presenting their first advocacy workshop (December 2008, pp. 1 and 13).

For more information about the patient advocacy award, contact Derek Brandt at dbrandt@aan.com. ■

Continued from previous page

the study area, the final analysis data set consisted of 4,573 children.

Malaria parasitaemia was detected in 140 (10%) of the 1,411 children in the comparison group and the prevalence of parasitaemia decreased consistently between 2002 and 2008, the researchers say. Also, the mean age of admission for malaria-associated seizures appeared to increase, but that of non–malaria-associated seizures remained the same.

The overall incidence of acute symptomatic seizures was 651/100,000 a year. It was 400/100,000 a year for acute complex symptomatic seizures and 163/100,000 a year for febrile seizures. The adjusted malaria-attributable fractions for acute symptomatic seizures in all admissions with parasitaemia were relatively high and decreased with age in children older than 6 months of age.

From 2002 to 2008, all acute symptomatic seizures decreased by 809/100 000 a year, with 93.1% of this decrease occurring in MAS. The decrease in the incidence of acute complex symptomatic seizures during the period was 111/100,000 a year (57.2%) for convulsive status epilepticus, 440/100,000 a year (73.7%) for repetitive seizures and 153/100,000 a year (80.5%) for focal seizures.

The adjusted malaria-attributable fractions for seizures with parasitaemia were 92.9% for all acute symptomatic seizures, 92.9% for convulsive status epilepticus, 93.6% for repetitive seizures and 91.8% for focal seizures. The adjusted malaria-attributable fractions for seizures in children above 6 months of age decreased with age.

"The observed decrease in all acute symptomatic seizures (809/100,000 a year) was similar to the predicted decline (794/100,000 a year) estimated by malaria-attributable seizures was similar to the predicted decline that was estimated using the modeled malaria-attributable fractions for seizures and suggests that the decrease observed is an approximate measure of the childhood admissions with seizures that are attributable to malaria," the researchers wrote. "The observed decrease in seizures could lead to reduced neurological disabilities and epilepsy associated with malaria in this area," they said. ■

Diabetes, Hypertension Tied to Brain Infarct

BY DENISE NAPOLI
Elsevier Global Medical News

Diabetes and hypertension were strongly and independently associated with brain infarcts, as well as with atrophic changes such as increasing ventricular size and sulcal widening.

The finding – from one of the first longitudinal imaging studies to look at vascular risk factors and infarct – confirms that "control of blood sugar and blood pressure in midlife should reduce the likelihood of ischemic and atrophic changes in the brain in subsequent decades," wrote Dr. David S. Knopman and his colleagues (*Neurology* 2011 May 4 [doi:10.1212/WNL.0b013e31821d753f]).

Dr. Knopman of the Mayo Clinic in Rochester, Minn., and his colleagues looked at an initially middle-aged cohort of patients from the Atherosclerosis Risk in Communities (ARIC) study, which in 1987 recruited nearly 16,000 adults aged 45-64 years from Forsyth County, N.C.; Jackson, Miss.; selected suburbs of Minneapolis, Minn.; and Washington County, Md.

The subset analyzed for current study included 1,812 patients who underwent brain magnetic resonance imaging (MRI) in 1994-1995; all of the patients were 55 years and older at this time, and came from either Forsyth County or Jackson.

Ten years later, between 2004 and 2006, the patients were invited to undergo a follow-up MRI as well as vascular health assessments. Overall, 1,112 of these follow-up images were of sufficient quality for inclusion in the present study (689 females; mean age 61.7 years).

"Compared with current participants, those who died, were ineligible, or refused to participate in the follow-up scan were older, had a much higher stroke rate, had a higher rate of diabetes and hypertension, and had worse imaging at the baseline scan," wrote the authors.

According to Dr. Knopman, at baseline, 50.3% of the included subjects had neither hypertension (defined as systolic blood pressure greater than 140 mm Hg, diastolic pressure greater than 90 mm Hg, or use of antihypertensives in the past 2 weeks) nor diabetes (defined as fasting glucose greater than 126 mg/dL, nonfasting glucose greater than 200 mg/dL, self-reported history, or treatment in the past 2 weeks). These patients were classified as having "low vascular risk." Patients with both conditions were referred to as "high vascular risk" and made up 9.2% of the total cohort studied, they added.

VITALS

Major Finding: Over 10 years of follow-up, 32.6% of patients with hypertension and diabetes recorded a brain infarct, compared with 15.1% of patients without either of these conditions.

Data Source: The Atherosclerosis Risk in Communities (ARIC) Study.

Disclosures: Lead author Dr. Knopman disclosed being a deputy editor of *Neurology*, the journal in which this study was published. He also disclosed relationships with Eli Lilly, the Elan Corporation, Baxter International, and Forest Laboratories. He and several other investigators stated they have received grants from the National Institutes of Health and the National Heart, Lung, and Blood Institute, which partially funded the ARIC study.

Among the high-risk group, incident infarcts were seen in 32.6%, compared with 15.1% in the low vascular risk group, and 20.1% in the overall cohort.

Moreover, the risk increased with disease severity, the authors found. "Those in the highest tertile for both fasting blood sugar and systolic blood pressure had a 3.68 times higher risk (95% confidence interval, 1.89-7.19) of new infarcts compared with subjects in the lowest tertile for both conditions," they added.

Diabetes alone was also associated with incident infarct, independent of hypertension. Indeed, after adjusting for multiple variables including age, sex, race, hypertension and prevalent stroke, having diabetes conferred a nearly two-fold risk of incident infarct, compared with those patients without the condition (odds ratio, 1.96; 95% CI, 1.23-3.10).

Similarly, hypertension alone was associated with an OR for incident infarct of 1.58, compared with those patients with normal blood pressure (95% CI, 1.08-2.30).

Looking at brain atrophic changes, Dr. Knopman found that most patients experienced a change in ventricular size, sulcal widening and white matter hyperintensities over the 10-year period, and older age by itself accounted for worsening in these categories.

However, vascular risk factors also played a role. Indeed, they found that 84.7% of patients in the high risk group, versus 73.2% in the low risk group, experienced ventricular size progression of one grade or more over the study period.

Similarly, 76.5% of high risk patients versus 55.5% in the low-risk group showed white matter hyperintensity progression. And 80.0% of high-risk patients, versus 69.6% of their low-risk counterparts, showed an increase in sulcal widening.

The authors found no race- or sex-specific interactions between changes in brain imaging and vascular risk factors, they wrote.

According to the researchers, the strengths of the current study are numerous, and include its large sample size, biracial composition, extensive risk factor assessment at baseline, and decade-long follow-up.

However, they did concede several weaknesses.

For one, they wrote, many subjects were lost over the 10 years of follow-up. However, "those persons who had follow-up scans were healthier in all respects including lower burdens of vascular risk factors, and less pathology on imaging," they wrote.

Consequently, "our findings probably understate the links between diabetes and hypertension." In addition, at the time of the initial scans, volumetric MRI was not yet available, making measurement over time of that particular parameter impossible, they noted. ■

Physician Education Is Crucial

Pain Treatment • *from page 1*

This failure to treat pain appropriately means that many patients suffer from acute, chronic, or cancer-related pain and are treated with substandard medicines or not at all, leading to adverse outcomes, especially high morbidity and mortality, and a lower quality of life for patients and caregivers. People with chronic pain are affected not only physically (such as reduced mobility), but also psychologically. Further complicating the treatment of pain is that:

- Pain experience and reporting pain are strongly influenced by cultural, societal, religious, and other factors;
- Pain treatment is frequently not simple – there is a wide gap between knowledge and practice;
- Health workers often have unfounded concerns about opioid tolerance, dependence, side effects, and addiction; and
- Many believe that opioid doses should relate to disease severity – rather than to pain intensity – and that nonopioid drugs should be used in preference to opioids.

International law obliges countries to make adequate pain medications available. They have an obligation to implement palliative care services and, according to the WHO, this must have "priority status within public heath and disease control programs." However, little progress has been made in recent years, which is why bodies such as the United Nations and IFHHRO, an independent body dedicated to advancing health-related human rights globally, are trying to redirect attention to the drive.

Among the most important points to emerge from the workshop discussions were that:

- Physicians and other health professionals have an ethical duty to offer patients with pain quality assessments, and to prescribe medications such as opioids in adequate quantities to all in need, including children and others who may not be able to express their pain clearly;
- The right to pain management access for all people, without discrimination, as laid down in professional standards and guidelines and in international law, should be respected and effectively implemented;
- Instruction on pain management, both clinical and didactic, should be mandatory in medical and nursing curricula, and in continuing medical and nursing education. This includes instruction in evidence-based pharmacological treatment; and
- It is necessary for health professionals to play a major role in improving access to essential medicines and in development of policies to ensure availability of, and access to, adequate pain treatment.

Neurological Perspective

Although the participants did not specifically discuss the neurological aspects of pain treatment, some of the principles and working points that emerged from the workshop could be applicable in the neurological setting.

For example, improved education and training in pain and palliative care is necessary for neurologists. The literature confirms that neurologists involved in the management of patients with brain tumors and motor neuron disease have insufficient knowledge about pain treatment, supportive and palliative care, and end-of-life treatment decisions, all of which are also necessary for management of patients with degenerative neurological diseases such as dementia, Parkinson's disease, and advanced multiple sclerosis (Neurology 1999;53:284-93).

Medical associations have an important role to play to support pain treatment as a human right, and both pain management and palliative care should be included in the mandatory medical and nursing curricula, and continuing medical and nursing education. ■

DR. PACE *is the director of the neurology unit at the National Cancer Institute Regina Elena, Rome, Italy. He was the WFN representative at this summit.*

'Cruel, Inhuman, and Degrading'

Worldwide, millions of people continue to suffer from severe pain that often could be alleviated by drug-based palliative care and pain relief. Apart from other reasons, such as poverty and overall problems relating to health care, restrictive drug policies have contributed to a situation in which access to narcotic drugs is still severely restricted and sometimes unavailable, in particular in the global South. I am of the opinion that the de facto denial of access to pain relief, if it causes severe pain and suffering, constitutes cruel, inhuman, or degrading treatment or punishment. I therefore call on the Human Rights Council to take up the question of drug policies in the light of international obligations in the area of human rights.

–Dr. Manfred Nowak, the U.N.'s Special Rapporteur on Torture and Other Cruel, Inhuman, or Degrading Treatment or Punishment, in a March 2009 report to the United Nations' Human Rights Council.

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Quality Measures for Neurological Practice

The American Academy of Neurology publishes its measurements for Parkinson's and epilepsy.

BY CHRISTOPHER T. BEVER JR., MD, MBA; ERIC M. CHENG, MD, MS; SARAH TONN, MPH; REBECCA SWAIN-ENG, MS; AND RICHARD DUBINSKY, MD, MPH

Late in 2010, the American Academy of Neurology for the first time published its quality measures for neurological practice. The measurement sets were for the management of patients with Parkinson's disease and for the care of patients with epilepsy (see sidebars.) Measurement sets for dementia, stroke, and peripheral neuropathy are in development.

Quality measures matter because governmental and private payers increasingly are linking reimbursement for services to reporting on measures of quality.

Currently in the United States, the largest payer – the Centers for Medicare and Medicaid Services – has established the Physician Quality Reporting System (PQRS), a pay-for-reporting program that pays a small bonus to physicians (including neurologists) who successfully report on quality measures. In the United Kingdom, the National Health Service has established a pay-for-performance program for general practitioners, whereby a bonus is provided for meeting quality-related targets. Worldwide, increasing health care costs coupled with persistent and growing concerns about care quality have driven payers toward programs that attempt to measure and reward care quality.

It is important that neurologists can use quality measures that are relevant to their practice.

DR. BEVER

Traditionally, most quality-measure development has been focused on primary care conditions, such as diabetes, and on high-risk procedures, such as coronary artery bypass surgery. The involvement of specialty organizations in the development of quality measures has been restrained by a lack of membership support, limited technical expertise, limited financial resources, and the organizational roles as advocates of the specialty rather than as regulators of the specialty.

However, a recent survey in the United States suggests that this is changing, with 35% of specialty organizations now actively involved in quality-measure development. The following three concerns appear to be driving this change in attitude:

- Specialist concern that quality measures developed by others and incorporated into payment programs may be disadvantageous to them.
- Concern that quality measures related to specialty care will not be included in pay-for-performance programs. For example, for 2011, there are only a few measures in PQRS that are relevant to outpatient neurology.
- Concern that maintenance of certification (MOC) requirements in the United States require performance-in-practice (PIP) evaluations, which are based largely upon quality measures.

Recently passed health care reform legislation in the United States provides a payment incentive for MOC and PIP participation. Given these changes, quality measures are likely to play an increasingly important role in neurological practice, and the harmonization of measures used by payers in pay-for-performance programs and in MOC is a priority.

Many neurologists want to know how quality measures are developed and whether they are valid. The American Academy of Neurology (AAN) quality-measure development process is based on a process developed by the American Medical Association–convened Physician Consortium for Performance Improvement® (PCPI), which is made up of medical specialty societies, state medical societies, and others interested in quality and patient care. PCPI quality measures are widely accepted and many have been incorporated into PQRS.

Quality-measure development topics are chosen by experts based on gaps in care, available evidence, and the importance of measuring quality of care. Published practice guidelines or consensus paper recommendations are ranked by a broad multispecialty stakeholder work group (including subject matter experts, patient advocate representatives, payers, and technical experts) based on gaps in care, validity, feasibility of measurement, and importance of measuring quality of care.

Quality-measure specifications are then drafted with an experienced methodologist to include a full quality-measure description, a numerator describing the required action, a denominator describing the eligible patient population, and applicable exclusions. The draft quality measures are then reviewed and refined by the work group at an in-person meeting. Technical specifications (including billing and diagnosis codes, and electronic health record specifications) are added to the quality measures. The refined measures are then posted for a 30-day public comment period. The work group reviews every comment received and considers rewording measures to improve clarity or modify content. The final quality measurement set is approved by the AAN Board of Directors.

For example, the Parkinson's disease (PD) and epilepsy quality-measure sets started with 258 and 160 recommendations, respectively, and the ranking yielded 12 candidate draft quality measures for each. The PD and epilepsy panels consisted of 28 and 40 experts. In all, 227 and 291 comments were received on the PD and epilepsy quality-measure sets. The final measurement sets consisted of 10 PD and 8 epilepsy quality measures, respectively. Although these quality measures have not yet been incorporated into PQRS, they have been incorporated into disease-specific modules for the AAN's MOC PIP program, NeuroPI®. In addition, the quality measures are undergoing testing for validity and reliability.

Specialists worry that quality measures developed by others may be disadvantageous to them.

DR. CHENG

The AAN has embarked on a quality-measure development program to provide measures of neurological care for these programs and for use in MOC, state licensure programs, public reporting, accountability, and quality-improvement programs. The AAN has adopted a quality-measure development process that is intended to include broad stakeholder input, be transparent, and base the measures on the highest level of available evidence. Quality measures are valued by important stakeholders in health care, and it is important that neurologists can use quality measures that are relevant to their practice.

Please address correspondence and reprint requests to the American Academy of Neurology, 1080 Montreal Avenue, St. Paul, MN 55116; or e-mail them at quality@aan.com. ■

The authors are members of the AAN's Quality Measures and Reporting Subcommittee. They are all based in the United States. DR. BEVER *is in the department of neurology at the University of Maryland, and the research service and department of neurology at the VA (Veterans Affairs) Maryland Health Care System, both in Baltimore.* DR. CHENG *is in the department of neurology at the*

Continued on following page

AAN's Final 10 Parkinson's Measures

1. Annual PD Diagnosis Review
All patients with a diagnosis of PD who had their PD diagnosis reviewed, including a review of current medications and a review for the presence of atypical features (such as falls at presentation and early in the disease course, poor response to levodopa, symmetry at onset, rapid progression [to Hoehn and Yahr stage 3 in 3 years], lack of tremor, or dysautonomia) at least annually.

2. Psychiatric Disorders or Disturbances Assessment
All patients with a diagnosis of PD who were assessed for psychiatric disorders or disturbances (such as psychosis, depression, anxiety disorder, apathy, or impulse control disorder) at least annually.

3. Cognitive Impairment or Dysfunction Assessment
All patients with a diagnosis of PD who were assessed for cognitive impairment or dysfunction at least annually.

4. Querying About Symptoms of Autonomic Dysfunction
All patients with a diagnosis of PD (or caregivers, as appropriate) who were queried about symptoms of autonomic dysfunction (such as orthostatic hypotension, constipation, urinary urgency/incontinence, fecal incontinence, urinary retention requiring catheterization, or persistent erectile failure) at least annually.

5. Querying About Sleep Disturbances
All patients with a diagnosis of PD (or caregivers, as appropriate) who were queried about sleep disturbances at least annually.

6. Querying About Falls
All visits for patients with a diagnosis of PD in which patients (or caregivers, as appropriate) were queried about falls.

7. PD Rehabilitative Therapy Options
All patients with a diagnosis of PD (or caregivers, as appropriate) with whom rehabilitative therapy options (such as physical, occupational, or speech therapy) were discussed at least annually.

8. Counseling on PD-Related Safety Issues
All patients with a diagnosis of PD (or caregivers, as appropriate) who were counseled about context-specific safety issues appropriate to the patient's stage of disease (such as injury prevention, medication management, or driving) at least annually.

9. Querying About PD Medication-Related Motor Complications
All visits for patients with a diagnosis of PD in which patients (or caregivers, as appropriate) were queried about Parkinson's disease medication-related motor complications (such as wearing off, dyskinesia, or off-time).

10. Review of PD Medical and Surgical Treatment Options
All patients with a diagnosis of PD (or caregivers, as appropriate) who had the PD treatment options (such as nonpharmacologic treatment, pharmacologic treatment, or surgical treatment) reviewed at least once annually.

FROM THE JOURNAL OF THE NEUROLOGICAL SCIENCES

Oromandibular Dystonia in Japanese Encephalitis

The flaviviruses encompass a broad group of positive-sense, single-stranded, enveloped viruses that include agents that cause two basic syndromes: viral fevers and encephalitis. Examples of these two syndromes would include yellow, West Nile, and dengue fevers; and Japanese, West Nile, St Louis, Powassan, Rocio, Far Eastern, and Central European tick-borne encephalitis. Some of these syndromes, such as Rocio and Powassan, are restricted to certain parts of the world, whereas others, such as West Nile virus, have spread worldwide in recent years. Others, such as dengue and Japanese encephalitis (JE), are currently geographically restricted but have been spreading in recent years.

BY ALEX TSELIS, MD, PHD

The encephalitides caused by flaviviruses can have a very broad range of manifestations. In addition to febrile encephalopathy, focal weakness, and seizures, the symptoms can include movement disorders, myelopathy, and anterior horn cell disease. JE, in particular, is known for its association with movement disorders with tremors, rigidity, and athetosis. Pathological examination shows inflammatory changes in the brainstem and basal ganglia, as well as in the cortex.

These observations were made in the first half of the 20th century, especially after World War II, when Allied troops occupied Japan and Southeast Asia. Several epidemics of JE provided researchers with the opportunity to study this disease, though initially, it had to be differentiated from von Economo's encephalitis (encephalitis lethargica), which has its own distinctive movement disorder. As experience with JE accumulated, the clinical syndromes associated with it were better delineated and studied. JE continues to provide opportunities to correlate signs and symptoms with pathology and imaging. Some new results are described in the current study by Jayantee Kalita and colleagues (J. Neurol. Sci. 2011;304:107-10).

Their study concerns oromandibular dystonia (OMD), in which sustained postures of the oral, buccal, and lingual muscles occur, thus interfering with speech, chewing, and swallowing. OMD was studied in patients with JE. The overall differential diagnosis of OMD is rather long and includes metabolic, neurodegenerative, postinfectious, posttraumatic, and medication neurotoxicity. The most likely causes of OMD depend on where in the world it occurs. In Southeast Asia, infections are the most common cause. In the West, degenerative diseases and medications are more likely.

Dr. Kalita and colleagues identified 209 patients with encephalitis, defined as a febrile encephalopathy with pleocytosis and exclusion of bacterial or fungal infection, septicemia, or malaria. Of these, 17 patients who had OMD were selected for detailed study, giving a rough estimate of 8% of JE patients having OMD, at least in this population. Fourteen of these patients had JE; the other three were nonspecific (NS) with no clear-cut viral cause established. The patients were studied with routine testing, as well as MRI and SPECT scans of the brain. The researchers followed up the patients to ascertain long-term outcome.

JAPANESE ENCEPHALITIS IS KNOWN FOR ITS ASSOCIATION WITH MOVEMENT DISORDERS WITH TREMORS, RIGIDITY, AND ATHETOSIS.

As might be expected, MRIs showed abnormalities in the central gray structures (basal ganglia, thalamus, brainstem) as well as cortex in all 16 JE OMD patients studied. Of the three NS OMD patients, the scans were normal for two. The SPECT scans, which measure perfusion, were abnormal in 7 of 10 patients tested, and showed hypoperfusion in the thalamus and basal ganglia as well as the frontal, parietal, and temporal cortices. Thus, both the cortical and deep gray structures were affected in JE, consistent with confusion and seizures as well as movement disorders. Although the dystonia would be expected with deep gray structure involvement, there was no detailed correlation between the precise movement disorder and MRI lesions; however, this is not surprising in a study with relatively small numbers of patients.

The outcomes were not encouraging, with persistent deficits in both the dystonia and other effects of the widespread encephalitis. The degree of OMD only partially correlated with the other deficits, such as dystonias elsewhere. Improvement was often not complete, and recovery took months. The OMD resolved in six patients, improved in two, and was unchanged in seven. Including all the deficits, only 2 of 14 patients made complete recoveries; of note is that 2 of the 3 NS patients recovered completely by 9 months.

The study is intriguing for several reasons. It would be interesting to compare the JE OMD with JE without OMD, especially if one wants to know the sensitivity and specificity of imaging. Thus, in this group of patients, is there a hint of a difference in the MRI and SPECT scans between the JE OMD and JE without OMD patients? If so, this might provide pathogenetic hints, laying the ground for the use of advanced imaging technologies such as magnetic transfer imaging, diffusion tensor imaging, and magnetic resonance spectroscopy.

The study provides an example of how a viral infection of selected brain structures can lead to deficits that have been seen with other diseases affecting those same structures. It would be interesting to know whether the selective involvement of the central gray structures implies a viral receptor or other specific molecule that is also involved in a genetically aberrant metabolic process, when mutated, in the susceptible cells? What is common to OMD caused by JE and, for example, Wilson's disease or postanoxic encephalopathy?

There are still ideas to develop and opportunities to take. ■

Continued from previous page

University of California, Los Angeles, and the department of neurology at VA Greater Los Angeles Healthcare. MS. TONN *and* MS. SWAIN-ENG *are with the AAN in Saint Paul, Minn.* DR. DUBINSKY *is in the department of neurology at the University of Kansas, Kansas City.*

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AAN Quality Page: www.aan.com/go/practice/quality

AAN NeuroPI page: www.aan.com/practice/pip

American Board of Psychiatry and Neurology (ABPN): www.abpn.com

AMA convened Physician Consortium for Performance Improvement® (PCPI): www.ama-assn.org/ama/pub/physician-resources/clinical-practice-improvement/clinical-quality/physician-consortium-performance-improvement.page

Physician Quality Reporting System (PQRS): www.cms.gov/PQRSs

AAN's Final 8 Epilepsy Measures

1. Seizure type and current seizure frequency
All visits with the type of seizure and current seizure frequency for each seizure type documented in the medical record.

2. Documentation of etiology of epilepsy or epilepsy syndrome
All visits with the etiology of epilepsy or epilepsy syndrome reviewed and documented if known, or documented as unknown or cryptogenic.

3. EEG results reviewed or requested, or a test ordered
All initial evaluations with the results of at least one EEG reviewed or requested, or – if EEG was not performed previously – an EEG ordered.

4. MRI/CT scan reviewed or requested, or a scan ordered
All initial evaluations with the results of at least one MRI or CT scan reviewed or requested, or – if an MRI or CT scan was not obtained previously – an MRI or CT scan ordered (MRI preferred).

5. Querying and counseling about antiepileptic drug side effects
All visits in which patients were queried and counseled about antiepileptic drug side effects, and the querying and counseling were documented in the medical record.

6. Surgical therapy referral consideration for intractable epilepsy
All patients with a diagnosis of intractable epilepsy who were considered for referral for a neurological evaluation of appropriateness for surgical therapy, and the consideration was documented in the medical record within the past 3 years.

7. Counseling about epilepsy-specific safety issues
All patients who were counseled about context-specific safety issues appropriate to the patient's age, seizure types and frequencies, occupation, leisure activities, and other relevant factors (for example, injury prevention, burns, appropriate driving restrictions, or bathing) at least once per year.

8. Counseling for women of childbearing potential with epilepsy
All female patients of childbearing potential (aged 12-44 years) diagnosed with epilepsy who were counseled at least once per year about epilepsy and how its treatment may affect contraception and pregnancy.

Calendar of International Events

2011

International Brain Research Organization World Congress of Neuroscience
July 14-18, *Florence, Italy*
www.ibro2011.org/site/home.asp

Congress of the Pan-Asian Committee for Treatment and Research in Multiple Sclerosis
Aug. 28-30, *Singapore, Malaysia*
www.pactrims.org

International Epilepsy Congress
Aug. 28-Sep. 1, *Rome, Italy*
www.epilepsyrome2011.org

International Congress of the World Association of Sleep Medicine and Congress of the Canadian Sleep Society
Sep. 10-15, *Quebec City, Canada*
www.wasm2011.org

American Association of Neuromuscular & Electrodiagnostic Medicine Annual Meeting
Sep. 14-17, *San Francisco, USA*
www.aanem.org/Meeting/Annual-Meeting.aspx

Asia Pacific Stroke Conference
Sept. 29-Oct. 1, *Colombo, Sri Lanka*
swww.apsc2011.com

Association of British Neurologists Annual Meeting
Oct. 5-7, *Newcastle, UK*
www.theabn.org/Meeting.aspx?type=1

World Congress of the World Sleep Federation
Oct. 16-20, *Kyoto, Japan*
www.worldsleep2011.jp/index.html

Int. Congress on Vascular Dementia
Oct. 20-23, *Riga, Latvia*
www.kenes.com/vascular

20th World Congress of Neurology
Nov. 12-17, *Marrakesh, Morocco*
www2.kenes.com/wcn/Pages/Home.aspx

2012

European Neurological Conference on Clinical Practices: Neurovascular and Neurodegenerative Diseases
Jan. 27-29, *Warsaw, Poland*
www.enccp.net

World Stroke Congress
Oct. 10-13, *Brasilia, Brazil*
www2.kenes.com/stroke/Pages/Home.aspx

MOVIE REVIEW

Was George VI's Impediment a Form of Action Dystonia?

"The King's Speech"
Directed by Tom Hooper
Featuring Colin Firth and Geoffrey Rush

The movie "The King's Speech" created quite a stir recently when it was nominated for 12 Oscar awards and Colin Firth bagged the Best Actor award for his remarkable portrayal of King George VI's struggle to conquer his speech impediment of stuttering.

BY KAILASH BHATIA, MD

Dr. Bhatia is lab head of the Clinical Movement Disorders Group at the Sobell Department of Motor Neuroscience and Movement Disorders in the Institute of Neurology at the University College of London.

MARIA STAMELOU, MD

Dr. Stamelou is in the department of neurology, Philipps University, Marburg, Germany.

The plot focuses on the reluctant monarch who succeeds his brother Edward after the latter abdicates and soon after that has to give the most important speech of his life – a radio address to the British people announcing that England had declared war on Germany. The movie highlights the predicament of people who stutter and the situations and factors that can aggravate the condition; in George's case, these included his harsh treatment at the hands of a nanny and being forced to become right handed. However, the movie also provides an opportunity to revisit this condition and consider it in a neurological sense: Is this condition a manifestation of basal ganglia dysfunction or a form of dystonia?

In medical parlance, stuttering or stammering is typically defined as involuntary dysfluency in verbal expression. Usually, stuttering manifests as repetitions of sounds, syllables, or words, or as speech blocks or prolonged pauses between sounds and words. Developmental stuttering occurs in about 1.4% children younger than 10 years, is most common in young boys, and resolves by adulthood in nearly 80% of children[1]. Less than 1% of adults stutter, 80% of whom are men.[1,2]

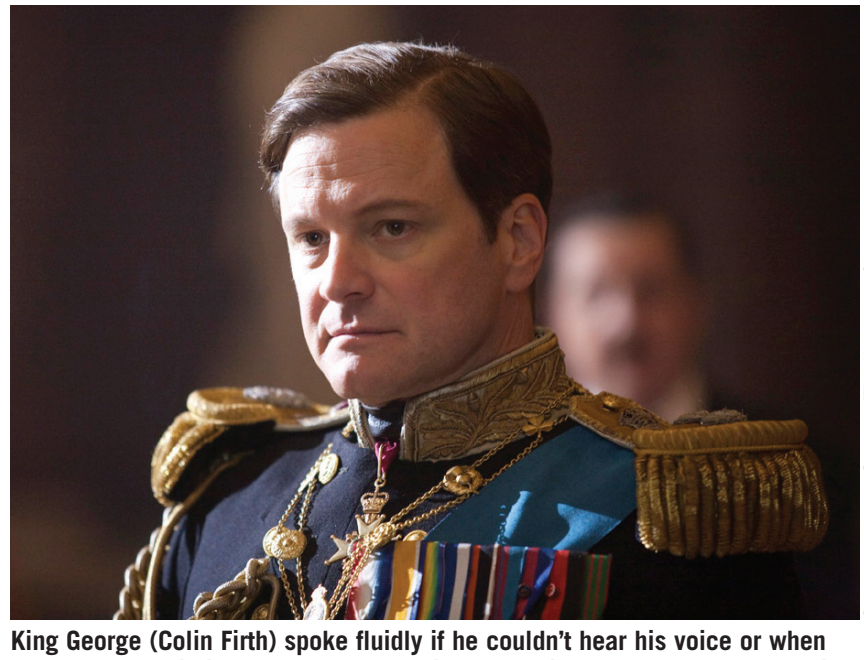
The exact pathophysiology of stuttering has not been clearly defined. There are some striking similarities between stuttering and focal dystonias that lead inevitably to the question: Is stuttering a form of dystonia? In the movie, some of these features are illustrated in a very convincing way. Stressful situations such as having to talk in front of the public worsened the king's stuttering, and this is usually seen in dystonia as well. More important, though, is the clear suggestion that it was the manipulation of the sensory input that had an effect in stuttering, which is also a characteristic feature of dystonia. For example, in the movie, the king wouldn't stutter while he was singing or if he couldn't hear his voice, as was the case when his speech therapist Lionel Logue (Geoffrey Rush) had him speak while listening to loud classical music through headphones. Indeed, altered auditory feedback such as singing, choral speaking, masking, and delayed or frequency-altered feedback have long been known to reduce stuttering.[3]

A similar effect can be demonstrated by the "sensory trick" in dystonia; for example, tactile sensory stimulation of the affected body part often dramatically reduces the muscular contractions. Another similarity between stuttering and dystonia is the task specificity. Some types of dystonia affect highly automated sequential motor tasks such as writing with a pen (writer's cramp), typing, or playing a certain musical instrument (musician's dystonia). Stuttering is also highly task specific because the motor problems are limited to speech. The symptoms of stuttering are often reduced if the stutterer changes to a nonautomatic way of speaking such as speaking with a foreign accent. That resembles the techniques patients with task-specific dystonia use to overcome their symptoms, such as using different fingers to hold a pen or changing its size or altering their instrument. As already mentioned, stuttering tends to disappear after childhood; the reason for that is not clear, but certain dystonic conditions can also go into remission or adapt.

With regard to causation, environmental psychosocial (stress, or negative experiences associated with speaking) and genetic factors have been implicated. Researchers now believe that an underlying genetic trait contributes to about 70% of the variance in liability for stuttering, whereas the remaining 30% are due to environmental factors.[4,5] Genetic factors also underpin various forms of dystonia. In this regard, it is interesting to note that a recent study showed increased susceptibility to stuttering in Han Chinese patients by the presence of the C allele at rs6277 in the dopamine D2 receptor gene, whereas the T allele was protective.[6] D1 receptor gene polymorphisms have also been implicated in focal cervical dystonia and blepharospasm.[7,8] This is also interesting as the dopaminergic system is implicated in various forms of dystonia. However, more recently a genetic defect was identified in consanguineous Pakistani families and unrelated individuals from Pakistan and North America. They were found to have mutations in the lysosomal function–related GNPTAB, GNPTG, and NAGPA genes that were associated with stuttering.[9] It is not clear whether these genetic defects underlie all patients with stuttering, and it is more likely that this is a genetically heterogeneous disorder.

A common pathophysiologic basis of stuttering and dystonia is feasible. It's likely that stuttering may be due to be an impaired ability of the basal ganglia and in particular the putamen to produce timing cues for the initiation of the next motor segment in speech,[10] and acquired stuttering has been reported after basal ganglia lesions. Basal ganglia lesions and dysfunction are well recognized in the causation of dystonia.[11,12] Supportive to that is our personal clinical experience, of patients who had stuttering in childhood that improved in adulthood, only to return when they developed basal ganglia disorders like Parkinson's disease or adult-onset primary dystonia. One of the most common causes of severe stuttering is Fahr's syndrome, where there is bilateral basal ganglia calcification. A common pathophysiologic basis is also supported by a recent electrophysiologic transcranial magnetic stimulation study showing that patients with stuttering have reduced short intracortical inhibition,[13] which is recognized as a key electrophysiologic feature in dystonia as well.

"The King's Speech" should again draw our attention to those who are affected by this disorder of chronic stuttering. These individuals have great difficulty communicating in key situations, a diminished satisfaction of life, and a reduced ability to achieve their goals.[14] Further understanding of the fundamental pathophysiology of this disorder is important in order to develop effective treatments. ■



COURTESY LAURIE SPARHAM/THE WEINSTEIN COMPANY

King George (Colin Firth) spoke fluidly if he couldn't hear his voice or when he sang – a variation of the "sensory trick" sometimes used to treat dystonia.

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BOOK REVIEW

Demystifying Neurology for Students and Teachers

Clinical Neurology: A Primer
By Peter Gates
Published by Churchill Livingstone Elsevier, Australia, 2010.

Several recent studies have suggested that medical students and residents have significant difficulty in diagnosing and managing patients with neurological illnesses.

One of the problems of current medical education is lack of integration of basic neurosciences (anatomy and physiology, in particular) and clinical neurosciences into a cohesive whole. As a result of this, the novices in clinical neurology – medical students and junior residents – find it hard to reason through the day-to-day neurological problems in their patients, and the subject of neurology has come to be viewed as a complex, difficult subspecialty in medicine.

Students' fear of clinical neurology can be defined as "neurophobia"; strong basic integration of neurosciences/clinical neuroscience should be able to cure this condition.

Where Science Meets Practice

There is already a wealth of textbooks in neurology for general audiences, senior residents, and practicing neurologists, but neurology text books intended for novices or medical students are few and far between.

Now, Prof. Peter Gates, who is associate professor of neurology at University of Melbourne and Deakin University, Melbourne, has written a book that is an excellent resource for neurology teaching. *Clinical Neurology: A Primer* will help instructors demonstrate to their students the strong integration between the basic neurosciences and clinical neurosciences, allowing students to enjoy and better understand this fascinating subspecialty of medicine.

BY TISSA WIJERATNE, MD

Dr. Wijeratne is director of the Stroke Unit and Neuroscience Research Unit, Western Hospital, Footscray, Victoria, Australia.

I thoroughly enjoyed this book. Prof. Gates, who is also director of stroke, director of neuroscience, and director of physician training at Barwon Health Geelong, Victoria, has successfully demystified the myth of neurology as a difficult subspecialty, and readers of his book will come to see how easy and enjoyable it is to learn and practice neurology. A high-quality, high-resolution DVD that comes with the book reiterates and demonstrates key aspects of the text.

Always With a Clinical Perspective

The first chapter of the book presents an innovative, thought-provoking approach to clinically oriented neuroanatomy.

Prof. Gates goes through the relevant neuroanatomy from a clinical viewpoint, introducing the concept of the meridians of longitude and parallels of the latitude to liken the nervous system to a map grid.

The descending motor pathway from the cortex to the muscle, the ascending sensory pathway for pain and temperature, and the ascending sensory pathway for vibration and proprioception are the meridians of longitude. The cerebral cortex and the cranial nerves of the brainstem (central nervous system) and nerve roots and the peripheral nerves (peripheral nervous system) are

Continued on following page

OBITUARY

Clark Millikan, MD (1915-2011)

BY ROBERT J. JOYNT, M.D., PH.D.

Clark Millikan, a noted authority on stroke and cerebrovascular disease, died Jan. 29, 2011, in Utah at age 95. He had been the first editor of the journal, *Stroke*; was the first chairman of the American Heart Association's stroke council; and was president of the American Neurological Association from 1973 to 1974.

Dr. Millikan was born in Freeport, Ill., March 2, 1915. In 1939, he graduated with a medical degree from the University of Kansas Medical School, Kansas City. He completed a surgical and a medical internship but became fascinated with neurology and went on to complete his neurology training at the University of Iowa, Iowa City, under Clarence Van Epps and Adolph Sahs.

I met Clark while I was at Iowa as a junior medical student rotating through neurology. I remembered his humor and humanity with patients. He was a meticulous examiner, bringing out signs that we as medical students had not found. Even then, he always wore a pearl-headed pin in his lapel, ready to do a neurological examination on anyone passing by. This practice continued throughout his career.

Clark left Iowa in 1950 to join the Mayo Clinic in Rochester, Minn. Some time after that, while I was on the staff at Iowa, I had an unusual case involving a patient with severe polymyositis and Parkinsonism. I treated him for each of the diseases. On the patient's return visit, he informed me that I was " very good" as he had gone to the Mayo Clinic – a custom of Iowans seeking a second opinion – and the famous neurologist Clark Millikan arrived at the same diagnosis.

COURTESY DR. NANCY FUTRELL

Clark Millikan was a respected expert on stroke and cerebrovascular disease, an inspiring teacher and mentor, and compassionate clinician.

I was emboldened by this confirmation and I decided to report the case. However, in the next *Proceedings of the Mayo Clinic*, Clark had published an article titled, "Unusual Combination of Polymyositis and Parkinsonism." Years later when I reminded him of this, he reminded me that "to the swift belongs the race." Of course, he didn't know I had seen the patient and correctly diagnosed him before he went to the Mayo.

Clark was chairman of neurology at the Mayo Clinic from 1955 to 1966. It was during this time that extracranial vascular disease was found to be the cause of many strokes, and Clark devoted much of his attention to this area of study. During this time, he was also founding editor of *Stroke* and he served on the American Board of Psychiatry and Neurology. From 1976 to 1987, when he was professor of neurology at the University of Utah, in Salt Lake City, Clark was elected president of the American Neurological Association. In 1997, Clark and his wife, Dr. Nancy Futrell, a pediatric neurologist, cofounded the Intermountain Stroke Center in Salt Lake City, where the focus was on diagnosing, treating, and preventing stroke.

Throughout his distinguished career, Clark trained many loyal residents. In addition to being a master clinician and teacher, his intellectual prowess and restless curiosity were the driving force behind the 250 scientific articles published during his lifetime.

Clark was a wonderful tennis player, and any excuse to pursue this passion was taken. He also was a fly fisherman, a horseman, and a woodworker. I remember traveling with him on a long, bumpy flight during which the lightning, on occasion, seemed very close to the craft. But Clark sat calmly knitting a sweater throughout.

Nancy was his devoted wife of 23 years. He had three children, William, Terry, and Jeffrey; four grandchildren; and five great-grandchildren.

I met Clark and Nancy at many meetings. He thought I looked like one of the previous Popes and would go through a rather irreverent greeting before telling me some new story or joke that he had picked up. I remember him mostly for his kindness to younger colleagues and his upbeat affability. ■

DR. JOYNT *is Distinguished University Professor at the University of Rochester Medical Center, New York.*

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the parallels of latitude.

Having established that grid concept, Prof. Gates explains that if the patient has weakness, then the pathological process must be affecting the motor pathway somewhere between the cortex and the muscle, whereas if there are sensory symptoms, the pathology must be somewhere between the sensory nerves in the periphery and the cortical sensory structures. It is the pattern of weakness and sensory symptoms/signs together with the parallels of latitude that are used to determine the site of pathology.

Prof. Gates uses the following examples that combine weakness with various parallels of latitude to help explain this concept. (The parallels of latitude follow the plus sign.)

- ▶ Weakness + marked wasting: the peripheral nervous system, because marked wasting does not occur with central nervous system problems.
- ▶ Weakness + cranial nerve involvement: the brainstem
- ▶ Weakness + visual field disturbance (not diplopia) or dysphasia: the cortex
- ▶ Weakness in both legs + loss of pain and temperature sensation in the torso: the spinal cord

A number of case studies and simple illustrations are used to clarify the matters in an easily digestible way for the novice reader in clinical neurology.

A chapter on neurological history taking outlines the basic principals and the skills needed to take an effective neurological history. Again, case studies are used to demonstrate and as the basis for discussion of the pivotal components of history taking. In addition, the reader gets to see Lord Walton of Detchant, the noted English neurologist, taking a neurological history from a patient in a segment in the accompanying DVD.

BY ADDRESSING A RANGE OF POSSIBILITIES IN ANSWERING CLINICAL QUESTIONS, PROF. GATES PAINTS AN HONEST AND ACCURATE PICTURE OF PROBLEM SOLVING IN THE REAL WORLD SETTING AND THE COMPLEXITIES OF THIS NUANCED PROCESS.

The DVD is an important, enriching component of this work. The reader can also observe demonstrations on neurological examination technique, for example, one in which Prof. Gates demonstrates how to perform the clinical exam of cranial nerves and upper and lower limbs.

Undergraduate and postgraduate students will find such footage of accomplished, experienced neurologists in action an in valuable resource in mastering clinical neurology skills.

A chapter on the cranial nerves and understanding the brainstem, is particularly useful. Here, Prof. Gates introduces his "Rule of Four," a simple method to understand the anatomy of brain stem and the complex brain stem vascular syndromes:

- ▶ There are four structures in the midline (the paramedian aspect of the midbrain adjacent to the midline) beginning with M: motor nucleus, median longitudinal fasciculus, medial lemniscus, and the motor pathway (corticospinal tract).
- ▶ There are four structures to the side (lateral) beginning with S: Spinocerebellar pathway, Spinothalamic pathway, Sensory nucleus of the 5th cranial nerve, and the Sympathetic pathway.
- ▶ There are four cranial nerves in the medulla (12th, 11th, 10th, and 9th cranial nerves); four in the pons (8th, 7th, 6th, and 5th cranial nerves), four above the pons (4th and 3rd cranial nerves in the midbrain, and 2nd and 1st cranial nerves outside the midbrain).
- ▶ The four motor nuclei that are in the paramedian region are those that divide equally in to 12 except for 1 and 2 cranial nerves: 3rd, 4th, 6th, and 12th cranial nerves.

Again, visuals – this time diagrammatic – are used to illustrate and further simplify the rule.

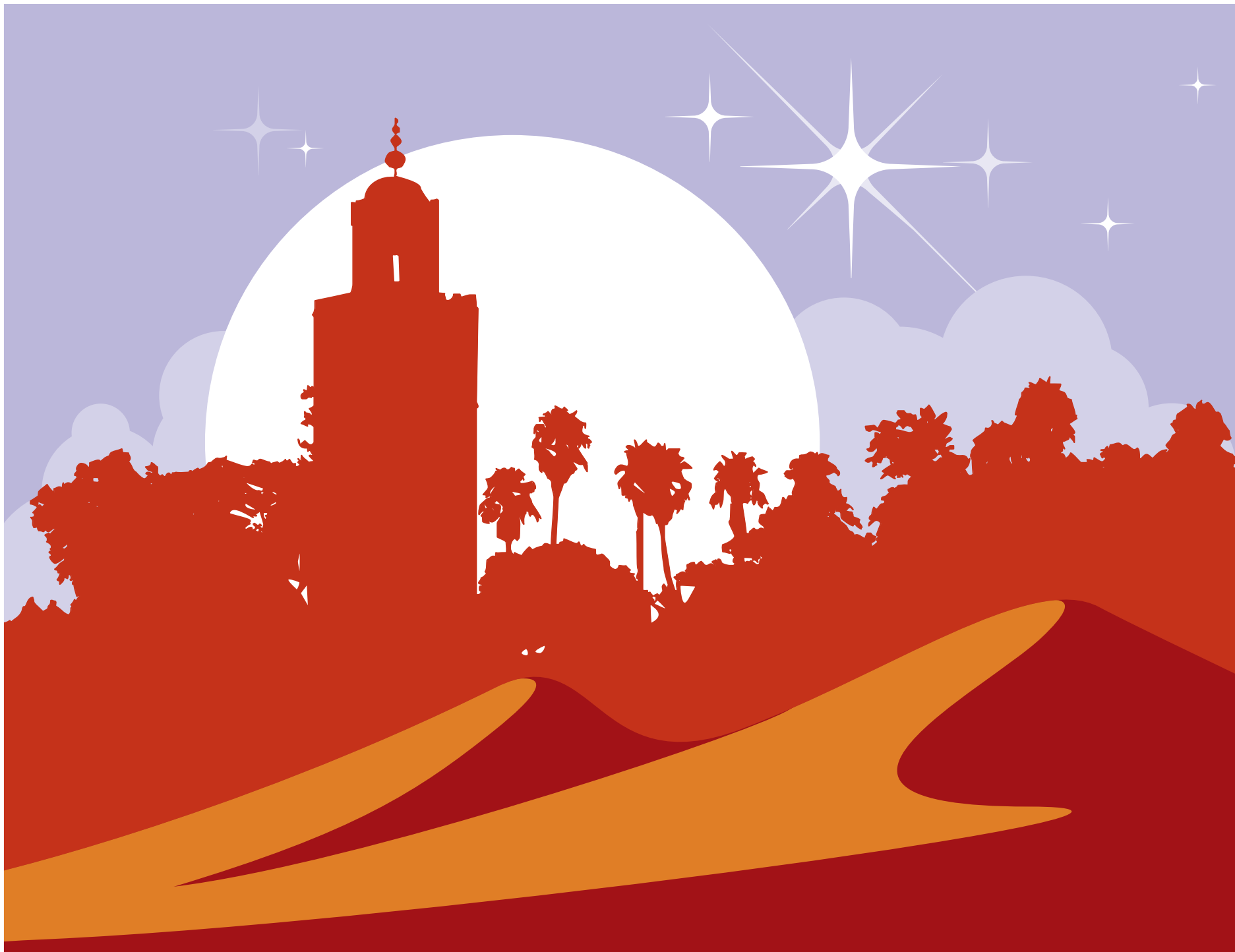
In a chapter titled "After the History and Examination, What Next?" Prof. Gates describes all of the possibilities that could arise by the end of the history and examination, from "no idea what is the clinical problem is" to "seeking another opinion."

In my opinion, his response to this question is revolutionary in a clinical neurology text book that is aimed at medical students and junior residents. By encompassing this range of possibilities, Prof. Gates paints an honest and accurate picture of clinical problem solving in the real world setting, which should give the reader an appreciation and understanding of complexities of this nuanced process.

Substantial and Accessible Information

Prof. Gates's book is intended for medical students and young doctors, yet, as teacher of neurology, I found it extremely useful.

For teachers, it offers a range of instructive tools and techniques, as well as clinical information that is both substantial and accessible. But most important, this book will help many medical students and young residents come to enjoy neurology as the fascinating subject that it is. ■



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